

Friday, October 21, 2016 3:02:28 PM

Page 1

FEB 17 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval																																																							
Description Work Order Deviation				Disposition				Completed By																																																							
								Lead hand / Supervisor Approval Verification																																																							
								QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____	
Misidentified ☐	Past Due ☐																																																														

Work Order ID 152219

Friday, October 21, 2016 3:02:28 PM

152219

Page 2

Item ID: D412-666-011

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Gross Weight Towing Adapter

Start Date: 10/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/21/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Packaging	0.00					DAS 28 9-89	DAS 27 9-89	FEB 1 7 2017
130						2			
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D412-666-011 Location :FG023								
140	QC21- Final Inspection - Work Order Release	0.00					DAS 21 9-89		FEB 2 1 2017
140									
QC	Memo	0.02							
Quality Control									
							DAS 21 9-89		FEB 2 1 2017

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Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

Picklist Print

Friday, October 21, 2016 3:02:27 PM

Page 1

Work Order ID: 152219

152219

Parent Item: D412-666-011

D412-666-011

Parent Item Name: Gross Weight Towing Adapter

Start Date: 10/17/2016

Required Date: 10/21/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:B Added GHG 002 NG 02-03-06
IPP Rev:C As per Rev C JLM 07-09-07 Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN6-15A *AN6-15A* Bolt		Purchased	No			110	Each	23.0000	4	28			
									**			FEB 16 2017	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST334		23							
				m134867		23							
AN6-45A *AN6-45A* Bolt		Purchased	No			110	Each	18.0000	4	48			
									**			FEB 16 2017	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				over008		15							
				M132677		15							
				ST333		3							
				M127832		3							
D2888 *D2888* Lug		Manufactured	No			110	Each	8.0000	2	24			
									**			FEB 16 2017	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST527		8							
				148156		8							

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Picklist Print

Friday, October 21, 2016 3:02:27 PM

Page 2

Work Order ID: 152219

152219

Parent Item: D412-666-011

D412-666-011

Parent Item Name: Gross Weight Towing Adapter

Start Date: 10/17/2016

Required Date: 10/21/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L6

Purchased

No

110

Each

256.0000

4

48

**

FEB 16 2017

DAS
6
9-89

DAS
27
9-89

MS21042L6

Nut

DAS
28
9-89

Location

Loc Qty

Loc Code

ST303

256

m135058

6

m135442

50

m135704

100

m135864

100

NAS1149D0663J

Purchased

No

110

Each

569.0000

8

810

**

FEB 16 2017

DAS
6
9-89

DAS
27
9-89

NAS1149D0663J

Washer

DAS
28
9-89

Location

Loc Qty

Loc Code

ST260

215

M131618

215

ST263

354

M135464

354

136192

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
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Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

Work Order ID 152219

Tuesday, February 14, 2017 11:56:33 AM

152219

Page 1

Item ID: D412-666-011**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** Gross Weight Towing Adapter**Start Date:** 10/17/2016 **Start Qty:** 2.00***2*****Cust Item ID:****Required Date:** 10/21/2016 **Req'd Qty:** 2.00***2*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
IIN D412-666	Rev C1								
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile & type labels per PPP412-666-011		CHG 004						
110	Pick Kit	0.00							
110									
Packaging	Memo	0.00							
Packaging									
120	QC4- 100% Inspect kits for completeness	0.00							
120									
QC	Memo	0.01							
Quality Control									

DAS FEB 15 2017

21
9-89

1.0 APPLICABILITY:

GROSS WEIGHT TOWING KIT D412-666-011 MAY BE INSTALLED ON DART D205-634-XXX OR D204-635-XXX OR D412-742-XXX SKIDTUBES INSTALLED ON 412 AIRCRAFT TO ALLOW GROUND HANDLING AT GROSS WEIGHT IN ACCORDANCE WITH BELL SERVICE INSTRUCTION BHT-412-SI-58. IT IS ALSO ACCEPTABLE TO INSTALL THIS KIT ON 204/205/210/212 AIRCRAFT EQUIPPED WITH DART SKIDTUBES IN ORDER TO PRESERVE THE LIFE OF THE AFT CROSSTUBES. THIS KIT CONTAINS ENOUGH PARTS TO INSTALL D2888 LUGS ON BOTH SKIDTUBES.

REFERENCE ONLY

2.0 PARTS LIST:

QTY -011	PART	DESCRIPTION
X	D412-666-011	GROSS WEIGHT TOWING KIT
2	D2888	LUG
4	AN6-15A	BOLT
4	AN6-45A	BOLT
8	AN960JD616	WASHER
4	MS21042L6	NUT (or MS21042-6)

3.0 WEIGHT AND BALANCE:

INSTALLATION	WEIGHT	LONGITUDINAL	
		ARM	MOMENT
D412-666-011	1.90 lb 0.86 kg	163.0 in 4.14 m	310 in lb 3.56 m kg

4.0 PROCEDURE:

- 1) REMOVE AN6-12A BOLTS (4) ON INBOARD SIDE OF AFT SADDLE AND DISCARD. ON LANDING GEAR WITH DART AFT CROSSTUBES, REMOVE (4) AN6-40A BOLTS.
- 2) INSTALL D2888 LUGS WITH AN6-15A BOLTS (2) AS SHOWN IN FIGURE 1. USE AN6-45A (2) BOLTS ON DART CROSSTUBES, AS SHOWN IN FIGURE 2.
- 3) TORQUE BOLTS TO 95-110 in-lb (10.7-12.4 N-m).

5.0 NOTE:

IT IS ACCEPTABLE TO REPLACE THE AN6-15A/45A BOLTS WITH LONGER OR SHORTER AN6 BOLTS AS REQUIRED AND/OR INSTALL EXTRA AN960JD616 WASHERS UNDER NUT TO ENSURE 1.5 TO 4 THREADS IN SAFETY.

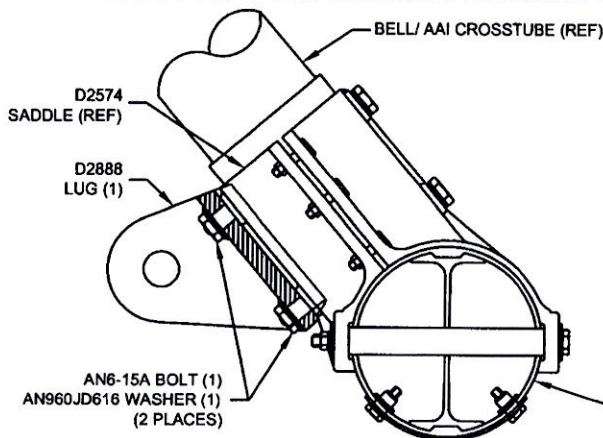


FIGURE 1
(BELL/AAI CROSSTUBES)

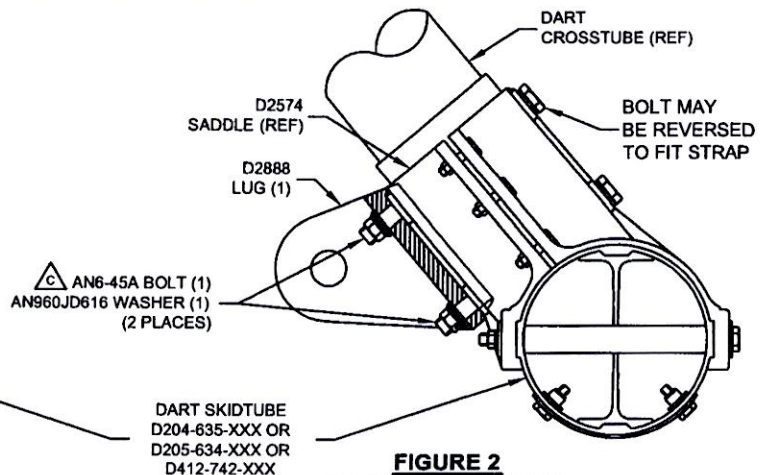


FIGURE 2
(DART CROSSTUBES)

C	- AN6-45A WAS AN6-43A, ADD NOTES - TO ENSURE COMPATIBILITY WITH D412-742-011/-013 - ESTIMATE (PARTS/PICK LIST) IS AFFECTED	MB	07.08.09
B	UPDATE KIT FOR BOTH SKIDTUBES AND COMPATIBILITY WITH DART CROSSTUBES	CP	02.03.04
A	NEW ISSUE	CP	99.05.03
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>[Signature]</i>		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. C
MFG. APPR.	N/A	D412-666	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	412 GROSS WEIGHT TOWING KIT	1:4
DATE	07.08.10	COPYRIGHT © 1999 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	